

Quite recently, Shadin (Faune de l'URSS., Mollusques, 4, No. 1, Unionidae, p. 117, 140; 1938) has tried to reinforce the separation of the *woodiana* group as a distinct subgenus, *Pteranodon*, from *Anodonta* proper; but the distinctive features offered, *i.e.*, shape of the shell and of the glochidium, do not seem convincing to me.

NOTES ON *ANGUISPIRA* AND *DISCUS*

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This paper is a supplement to "A Monographic Study of the Snails of the Genera *Anguispira* and *Discus* of North America, exclusive of Mexico," which appeared under my authorship in the Annals of the Carnegie Museum, vol. 27, 1940, pp. 371-426.

Discus patulus carinatus, which new varietal name I gave to *Discus patulus angulatus*, stands as a good subspecies, as *Helix (Patula) perspectiva carinata* Gratacap (Bull. Am. Mus. Nat. Hist., vol. 14, 1931, p. 358) is a synonym of *Discus bryanti nigromontanus* (Pils.). I had the opportunity this past spring of examining Gratacap's *carinata* at the American Museum of Natural History. This variety had previously been placed under *Discus patulus angulatus* Kutelka as a questionable synonym.

The distributional range of *Discus patulus carinatus* can be extended westward to Grand Rapids, Michigan, and Whitehall, Greene County, Illinois. This subspecies has also been recorded from Brighton and Oberlin, Ohio, and New Harmony, Indiana.

In the Monographic Study of *Anguispira* and *Discus* I included three charts showing the interrelationship of the various species. One of these charts showed *Discus rotundatus* (Mueller), *D. meclintocki* (F. C. Baker), and *D. m. angulatus* (F.C.B.) descending from *D. patulus*. Since B. Shimek found a living specimen of *D. meclintocki* in Iowa in 1928 there is the possibility that this species is not ancestral to *D. patulus*, which opinion J. P. E. Morrison holds. From this it is more plausible that *D. meclintocki* and *D. m. angulatus* are the ancestral or parental species of *patulus*, or all, together with *D. rotundatus*, are offshoots of the same common ancestor that existed in the past geological ages. Further study of *Discus sandersoni* (Russell), *D. similimus*

(Stearns), and *D. ralstonensis* (Cockerell), specimens of the Cenozoic and Mesozoic Eras, may prove that one of these is the ancestor of all the species and subspecies of *Discus* in North America.

To the list of species of *Discus* should be added *Discus randolphi* described as *Zonitoides randolphi* by H. A. Pilsbry in the NAUTILUS, vol. 12, 1899, p. 87.

In an article entitled "The Catalogue of the Binney and Bland Collection of the Terrestrial Air-breathing Mollusks of the United States and Territories in the American Museum of Natural History, with enumerations of Types and Figured specimens; and supplementary notes" (Bull. Am. Mus. Nat. Hist., vol. 14, 1901), L. P. Gratacap, on page 357 under *Helix (Patula) alternata* Say, makes the following comment, "Variation in the intensity and distribution of the color marks, partial suppression and very coarse prominence of the striae, the latter in its extreme form in var. *costigera* Bld., and flattening of the whorls are the unstable features of this shell, etc." The variety called *costigera* by T. Bland is a synonym of *Anguispira alternata paucicostata* Kutelka, which had previously been placed as a synonym of *A. alternata costata* (Lewis), and which Gratacap thought was synonymous with *A. a. costata*. *A. a. paucicostata* has been found in Monroe County, Tennessee, by Mrs. G. Andrews and a specimen from the Crooke Collection at the American Museum of Natural History is labeled "Smoky Mountains."

The distributional range of *Anguispira alternata crassa* Clapp can be extended to include localities in Oklahoma and Missouri. This subspecies had been separated from *alternata* as a variety by previous workers on North American land snails. The Binney and Bland Collection contains a specimen of *A. alternata* labeled "*Helix alternata* var. *laevigatus* of my notes 4. Is it *infecta* Parr.?", and another labeled "*alternata* var. 4; not *infecta*," evidently received from L. Pfeiffer. In the same collection are five specimens labeled *Helix alternata australis* from Tennessee, from Elliot.

To *Anguispira alternata smithi* Walker should be added Stevenson, Jackson County, Alabama, as a new locality record. This subspecies has been found near Huntsville in the same county.

A specimen of *A. alternata carinata* (Pilsbry & Rhoads) found at Pelham, Westchester County, New York, extends the distributional range of this shell eastward from Pennsylvania through New Jersey to New York; and there is the possibility that this subspecies might be collected also in Delaware.

While the Monographic Study of *Anguispira* and *Discus* was in press a new variety of *Anguispira kochi* had been described as *eyerdami* by W. J. Clench and Gilbert Banks (Mem. Soc. Cubana Hist. Nat., vol. 13, 1939, p. 285, pl. 36, fig. 3). As I did not receive the reprint of this article until after my paper had come from the press, it was impossible for me to include it in that paper. However, from the description and figures of *Anguispira kochi eyerdami* and the remarks concerning it, I cannot refrain from considering it as a synonym of *A. kochi*. Even if it is considered a smaller, darker colored, and more depressed form of *A. kochi occidentalis* (Martens), it is still a synonym of *A. kochi*, as I have considered the former only a narrower and taller form of *A. kochi*.

For distributional records the following localities for *Anguispira alternata eriensis* (Clapp) are given:

ILLINOIS: Utica, LaSalle County. KANSAS: Kaw River Island, Lawrence, Douglas County. MAINE: Orono, Penobscot County; Cliff Island, Casco Bay, Cumberland County; Rum Key, Frenchman's Bay, Hancock County; Bald Porcupine Island, Frenchman's Bay, Hancock County. MASSACHUSETTS: House Island, Essex County; Manchester, Essex County; Eagle Island, Marblehead, Essex County. MICHIGAN: Bay Point, Monroe County; Macinaw, Cheboygan County; Cedarville, Sault Ste. Marie, Mackinac County; Cascade Glen, Ann Arbor, Washtenaw County. NEW YORK: Buffalo, Erie County; Ossian, Livingston County; Bluff Island, St. Lawrence River, Jefferson County. OHIO: Sandusky, Erie County; Kelleys Island, Lake Erie, Erie County; Perrysburg Township, Wood County; Shore of Maumee Bay, Lucas County; Green Island, Sugar Island, Starve Island, North Bass Island, South Bass Island, Gibraltar Island, West Sister Island, Put-in-Bay Island, and Rattlesnake Island, Lake Erie, Ottawa County. PENNSYLVANIA: North Girard, Erie County. WISCONSIN: Shore of Lake Koshkong, Dane County.

ONTARIO: Hamilton, Wentworth County; Hen Island, Pelee Island, East Sister Island, Middle Sister Island and North Harbor Island, Lake Erie, Essex County. QUEBEC: Cap Rouge.